

Reefers Den

Reef Keeping Basics (Phase 1)

MARCH 16, 2015

- ✓ Thorough Explanation About Cycling
- ✓ Water Parameters Checking (*Temperature, Salinity, pH, Ammonia, Nitrite, Nitrate, Phosphate, Calcium, Alkalinity, Magnesium, Iodine, TDS, Copper & Other Trace Elements*)
- ✓ Purpose of Activated Carbon, GFO, Biopellet
- ✓ Purpose of Different Chemical Filtration
- ✓ Reef Supplement: Their purpose and Usage Direction (Alpha, Balance, Eight.Four, Calcification, Fuel, Ions, Vibrance)
- ✓ Modifying Skimmer to Improve Performance
- ✓ Coral Fragging
- ✓ Q & A

Purpose of Activated Carbon, GFO, Biopellet

Activated Carbon



Activated Carbon

➤ **What is it?**

Activated Carbon is also called activated charcoal, activated coal or carbo activatus. Activated carbon is a form of carbon that has been processed to make it extremely porous and thus to have a very large surface area available for adsorption or chemical reactions. Activated carbon is manufactured from carbon, typically coal. The two most common forms are bituminous and lignite based. Another form that is not made from coal is coconut shell based.

➤ **What Does Activated Carbon Do?**

The use of activated carbon in marine tanks is considered to be a form of chemical filtration. Working through absorption, activated carbon removes gelbstoff, some large organic molecules, medications, chlorine, pollutants and toxins, as well as many other types of chemical elements and compounds from the water that a protein skimmer or another means of filtration may not remove.

Activated Carbon

➤ **How Often Should Carbon be Used?**

The two main concerns about using carbon in a saltwater system is that carbon often leaches phosphate into the aquarium, and that it removes necessary trace elements needed by reef animals, particularly corals.

➤ **How Much Carbon Should Be Used?**

More is not always best, and using the least amount of carbon necessary is recommended. The general consensus here is that a quantity of about 3 level tablespoons of carbon per 50 gallons of actual tank water volume should be sufficient to keep a saltwater aquarium

➤ **How Often Should Carbon Be Changed?**

Like most other absorbing compounds, carbon can only absorb as much as it can hold. Once it has taken in as much as it can, it becomes exhausted, which means it is unable to absorb anything more.

Granular Ferric Oxide



Granular Ferric Oxide

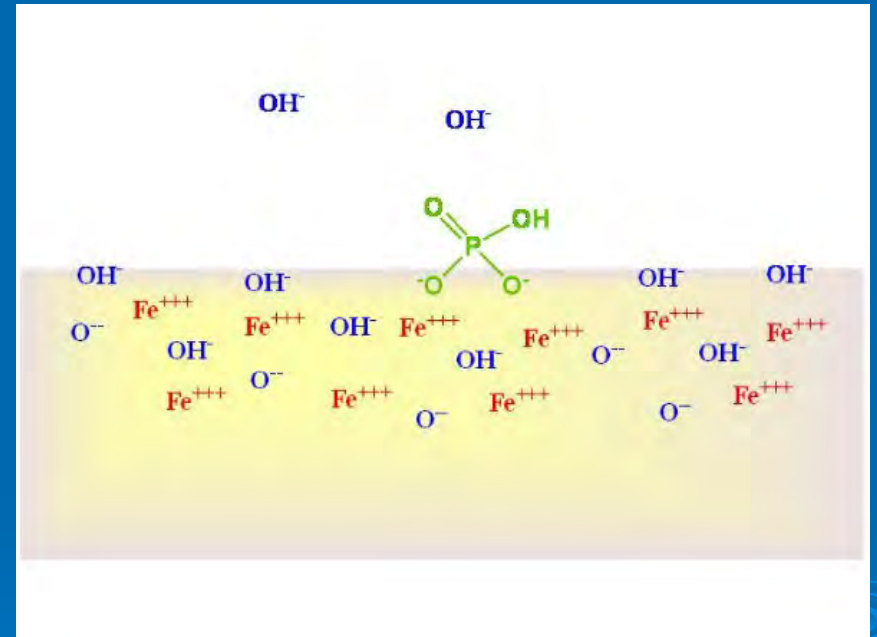
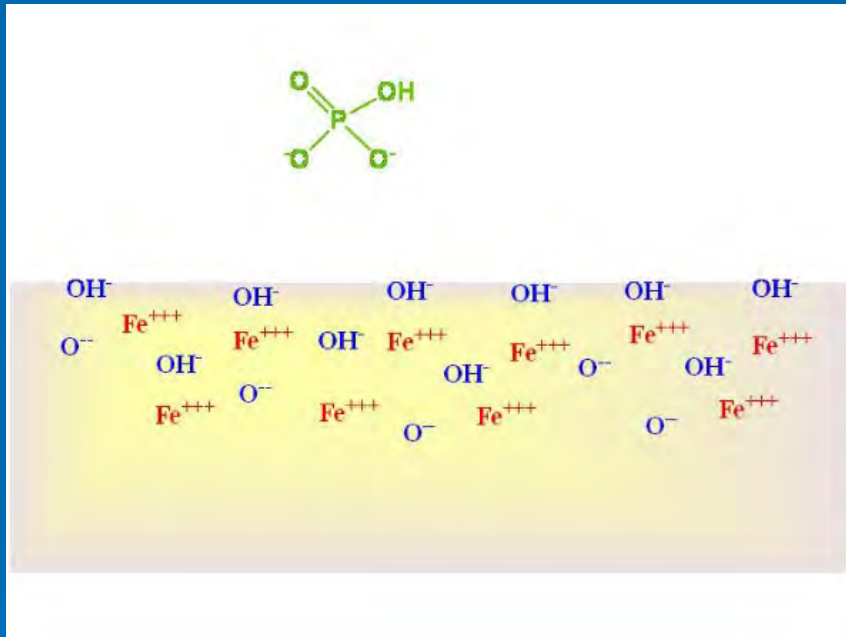
➤ What is it?

Granular Ferric Oxide (GFO) removes phosphate from the aquarium and is one of the most commonly used filtration media used in the aquarium industry. GFO is one of the few ways to easily maintain ultra low phosphate levels on a consistent basis. Maintaining these ultra low levels will help prevent algae outbreaks as well as treat existing algae issues.

➤ How iron oxide hydroxide binds phosphate?

Phosphate is believed to bind to iron oxide hydroxide through a direct ionic interaction between one or two negatively charged oxygen ions on the phosphate with the ferric ions (Fe^{+++}) in the solid

Granular Ferric Oxide



Granular Ferric Oxide

➤ **What else does iron oxide hydroxide bind?**

The two main concerns about using carbon in a saltwater system is that carbon often leaches phosphate into the aquarium, and that it removes necessary trace elements needed by reef animals, particularly corals.

➤ **What else does iron oxide hydroxide bind?**

- Metals
- Organics

➤ **Precipitation of CaCO₃?**

Many aquarists using GFO have reported unusually extensive precipitation of carbonates on the solid GFO, and elsewhere in the system. Such precipitation can, for example, be a contributing factor in the caking of such materials, and can coat other surfaces in the aquarium.

Biopellet



Biopellet

➤ What is it?

Biopellets are made of a bio-degradable polycarbonate plastic. When used in aquariums, the biopellets are placed in a reactor with moderately high flow. Various strains of bacteria colonize on the pellet's surface feeding from the carbon source, phosphate, and nitrate.

Biopellet

➤ PROS

- They will reduce/control nitrate and phosphate, and most tanks with established biopellets are crystal clear.
- Unlike gfo, you only open your reactor every 4-6 months. This is the main reason I switched from gfo. I hated changing gfo, it is messy and expensive. With bio pellets, you just top them off.
- There are no "dusts" or residues left in your sump or in your aquarium.
- Unlike gfo, it does not strip nutrients bare. This is especially helpful if you have LEDs and need as many nutrients as possible to maintain nice color in sps.

➤ Cons

- If you don't have a good skimmer, or don't slowly break your tank in, or add too many, you will nuke your tank. The bacteria in large quantities are extremely DANGEROUS!
- Biopellets provide energy to ALL types of bacteria. This can lead to tremendous cyano issues(

END

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